

Figure 1: Self Addressing Microlocations
(Microlithographic Fabrication)

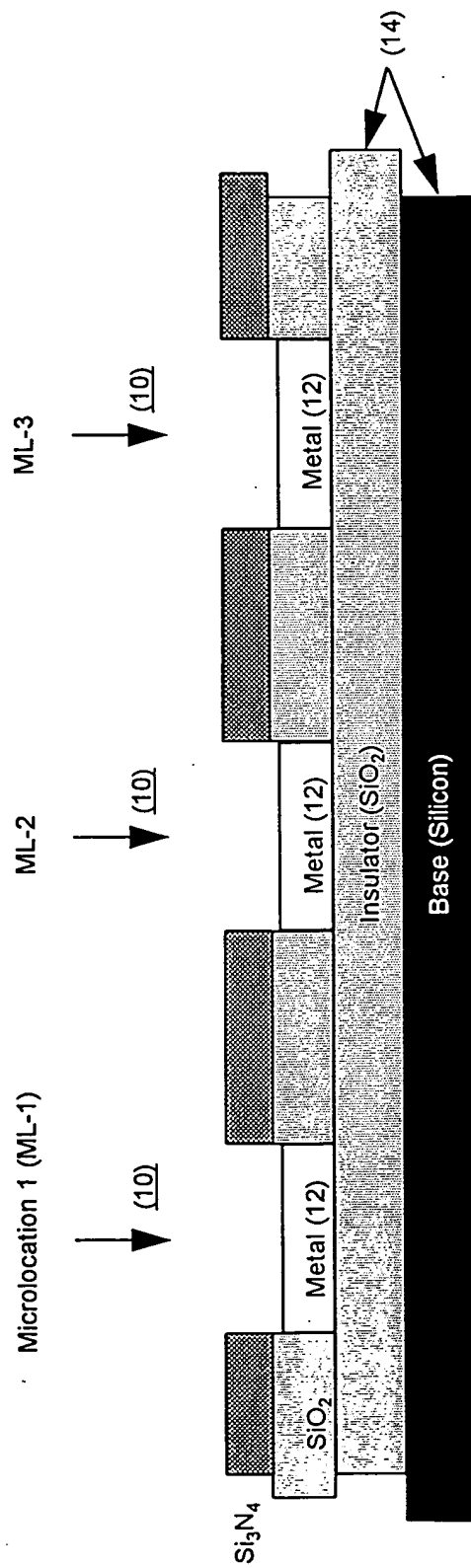


Figure 2: Microlocation Design Features

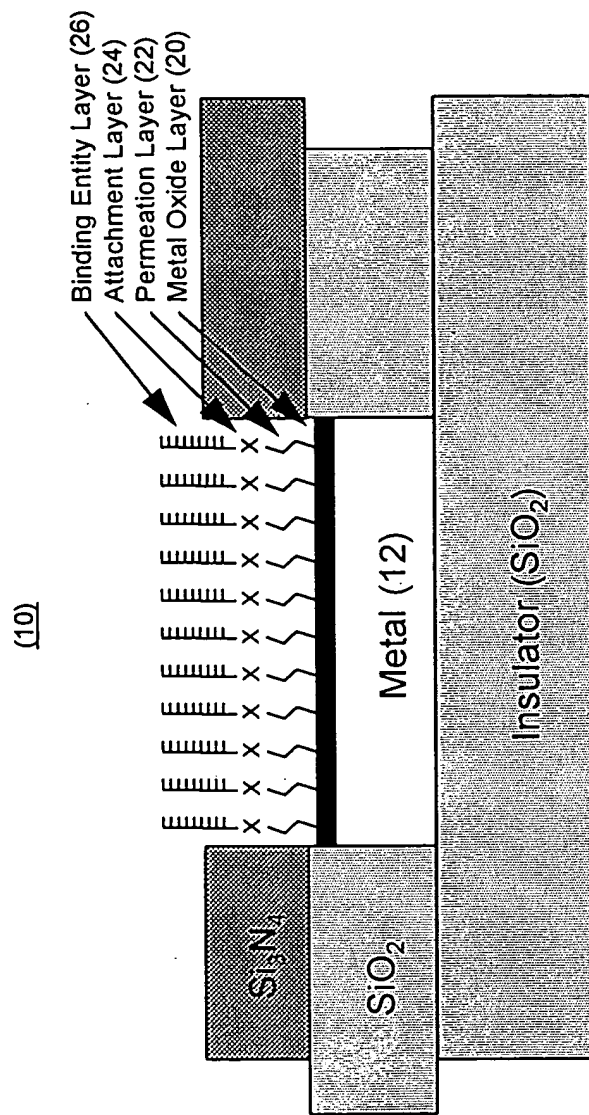
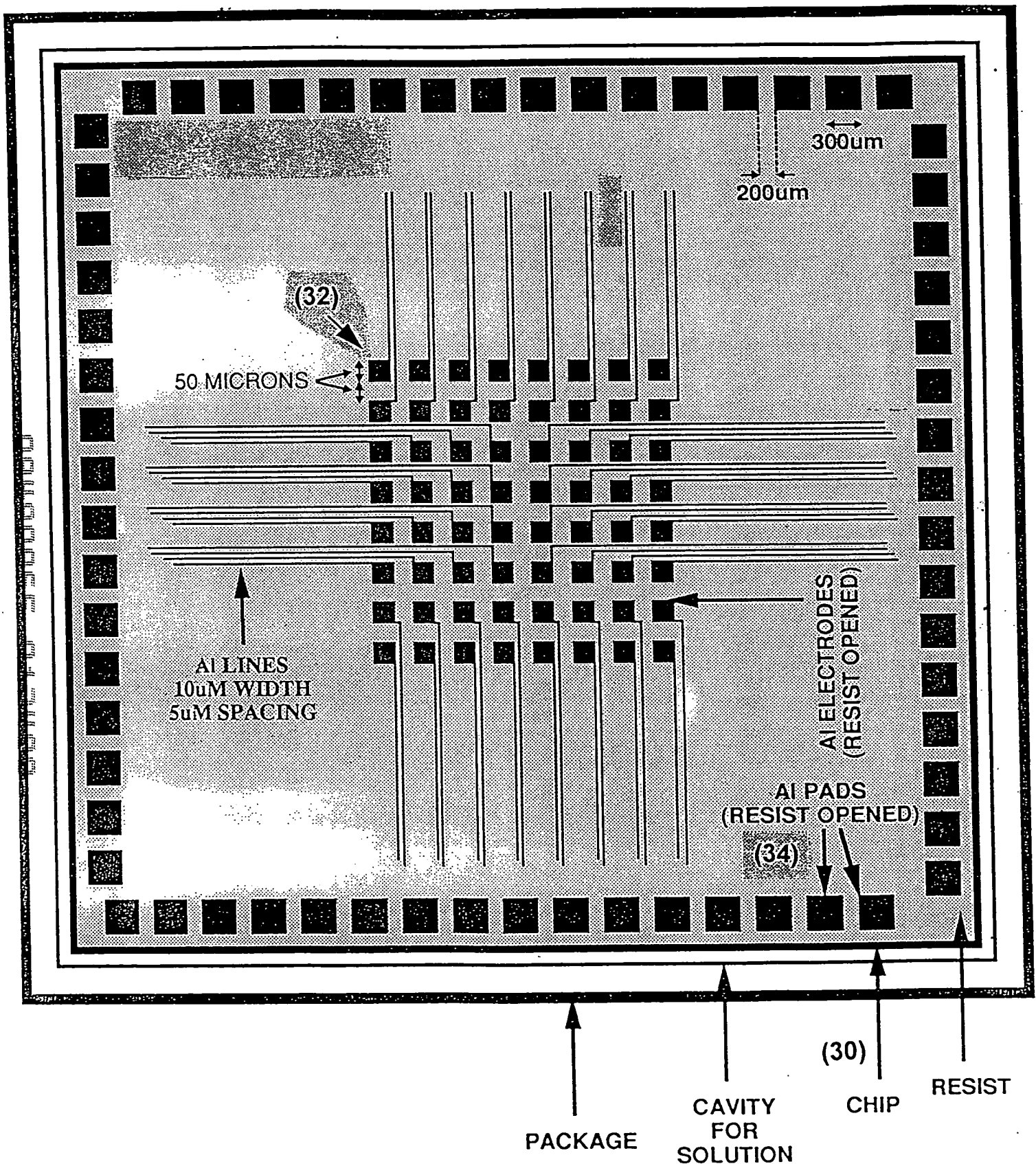


Figure 3: Self-Addressable 64 Microlocation Chip



CHIP LAYOUT

Figure 4: DNA Attachment Chemistry

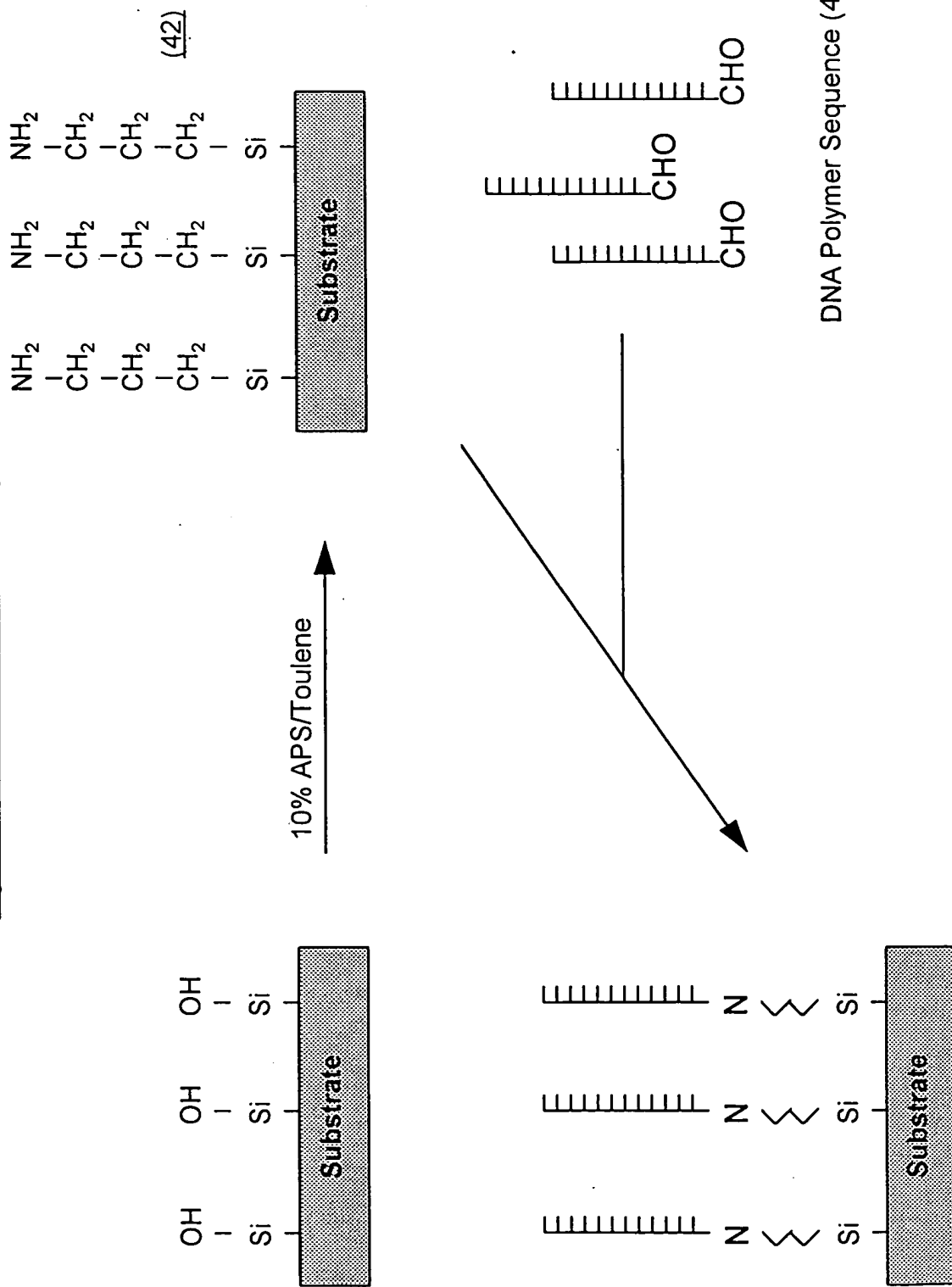


Figure 5: Micro-Machined Device (Exploded View)

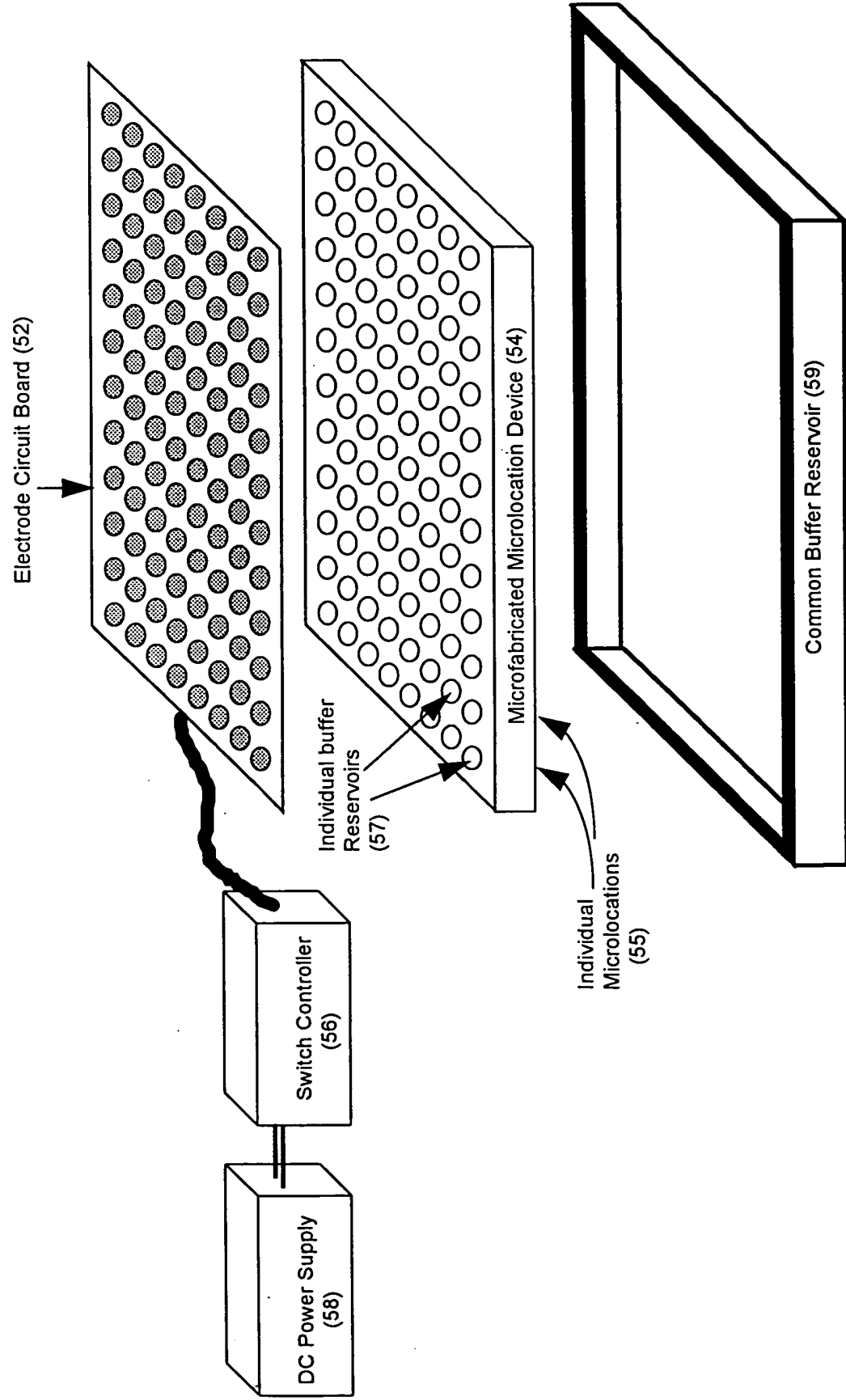


Figure 6: Micro-Machined Device (Cross-Section)

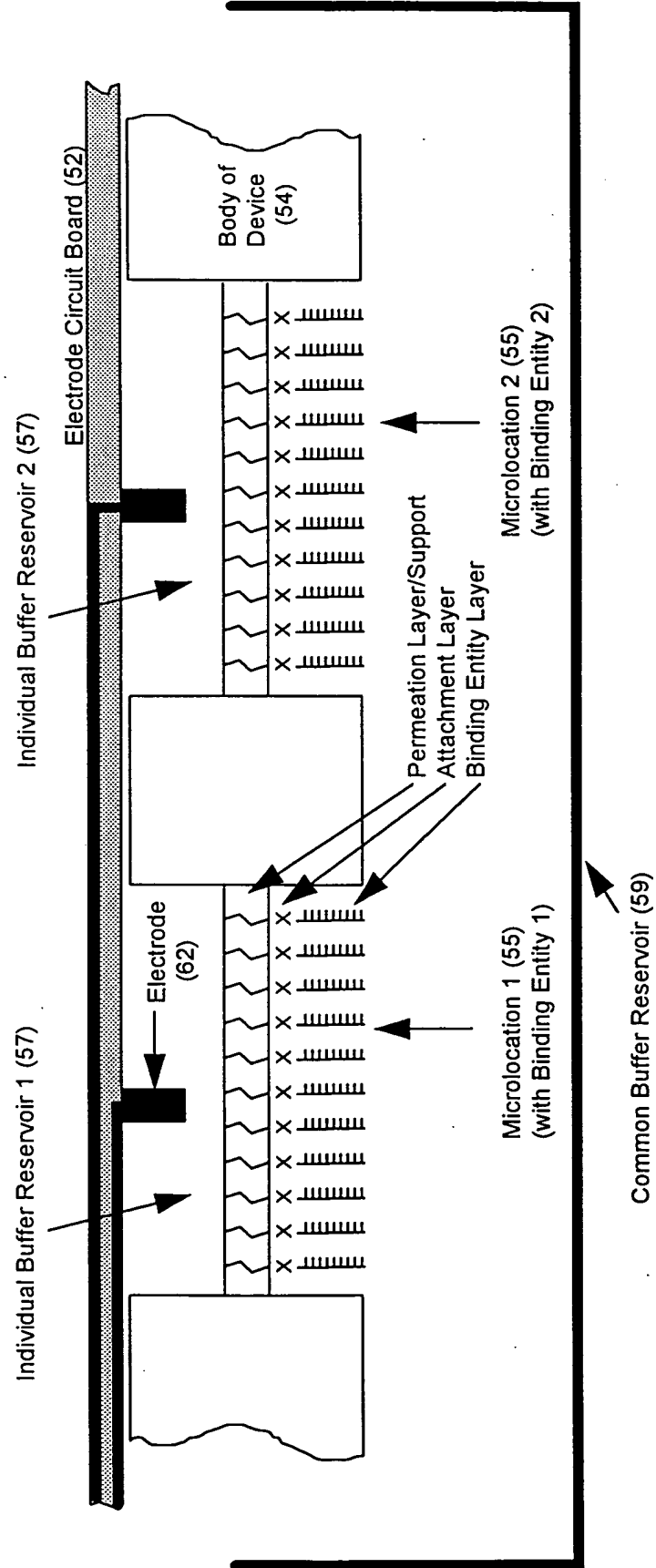


Figure 7: Electronically Controlled Concentration Effect

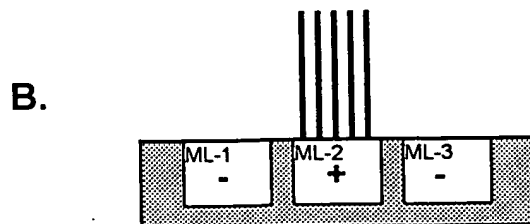
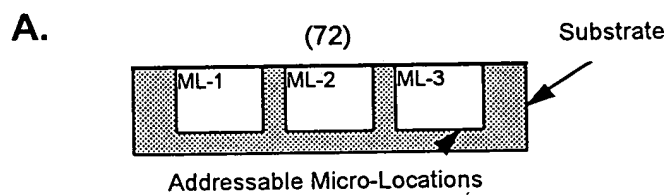
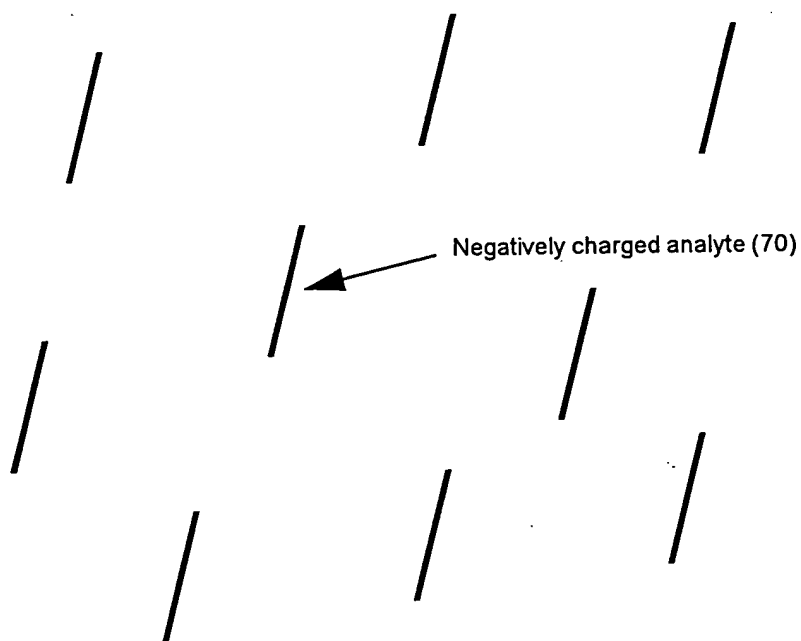
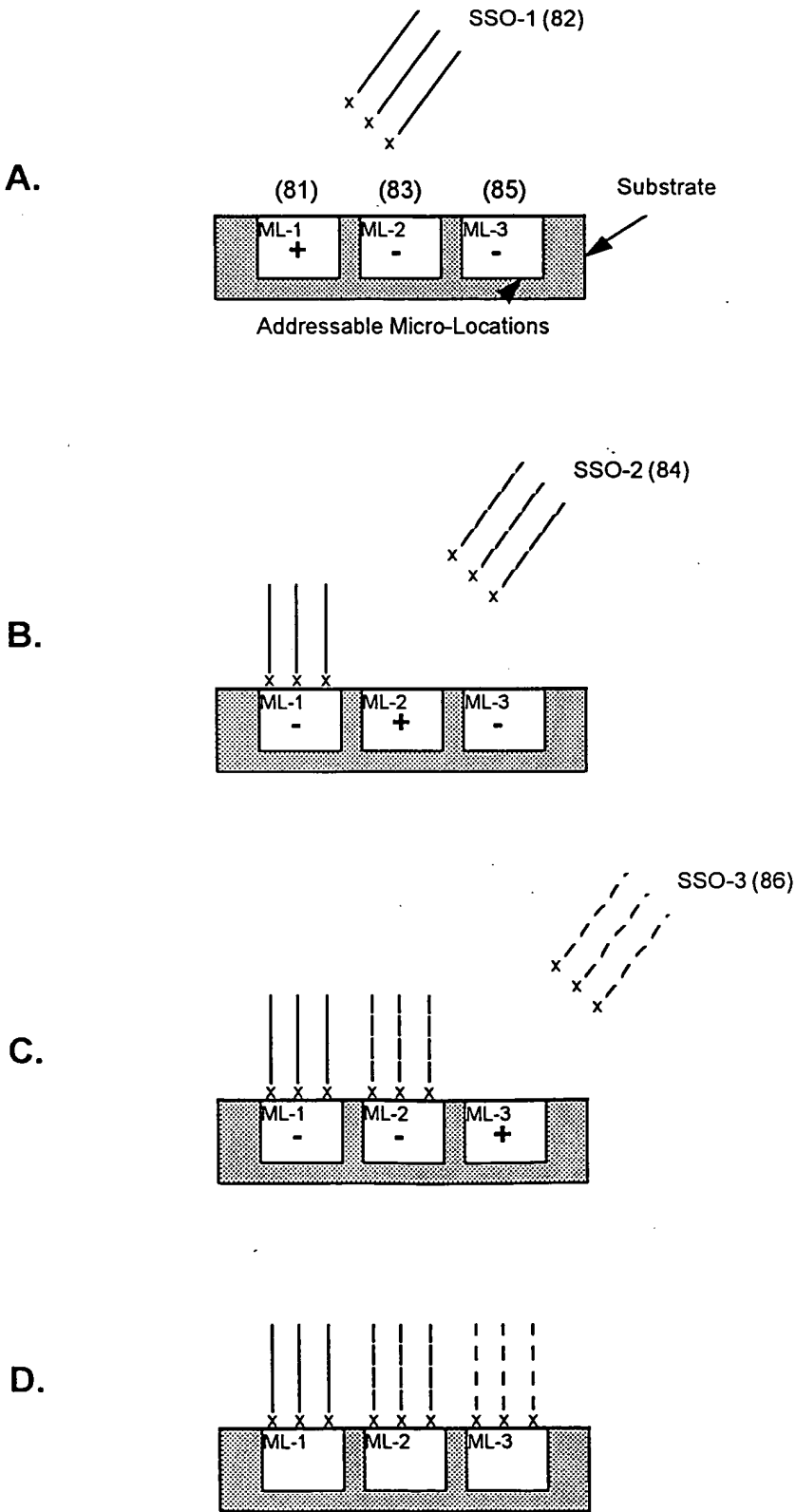


Figure 8: Electronic Addressing and Self-Directed Assembly of Device.



.. Figure 9: Electronically Controlled Hybridization Process

(90)

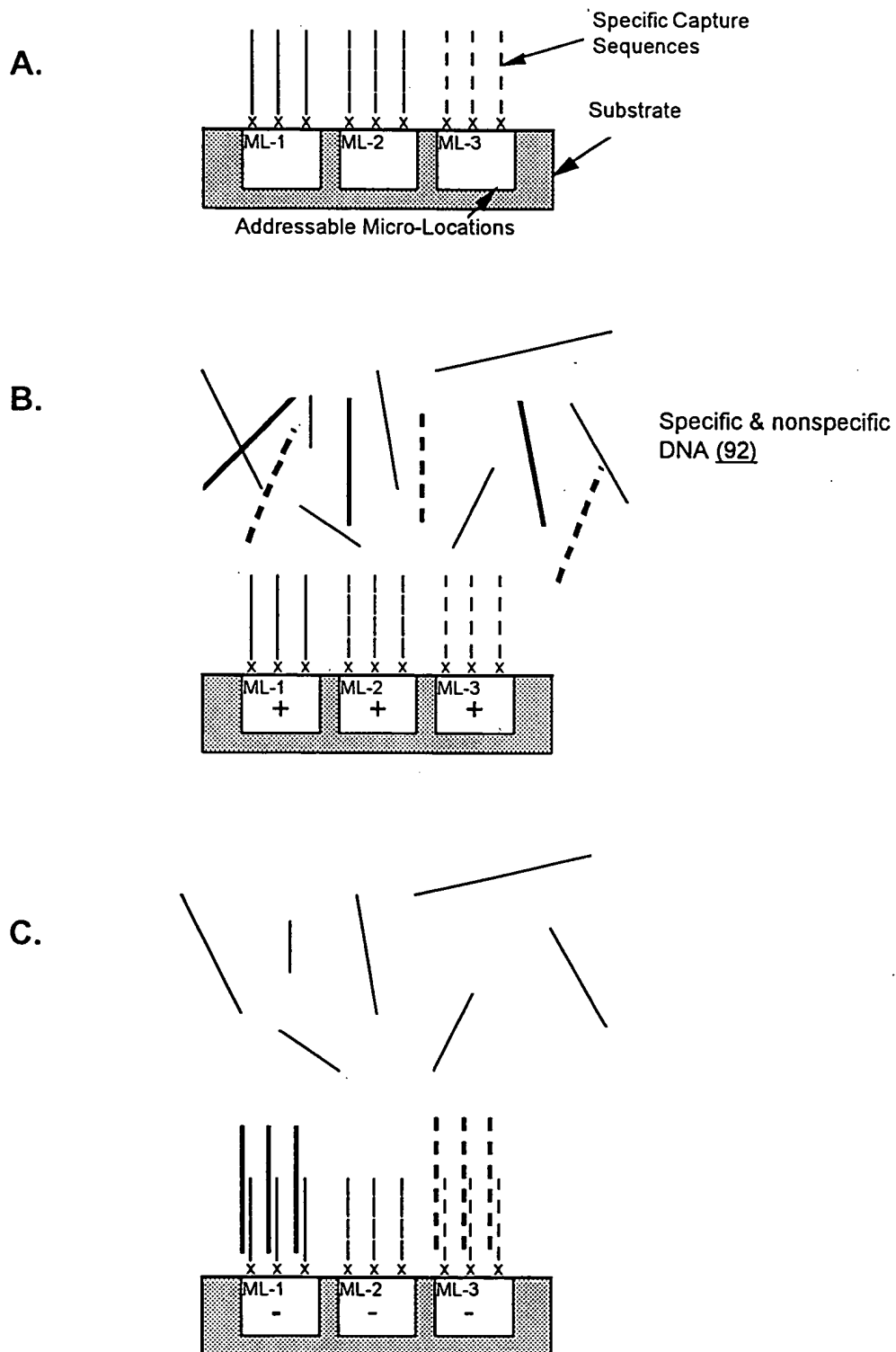


Figure 10: Electronically Directed Serial Hybridization Process

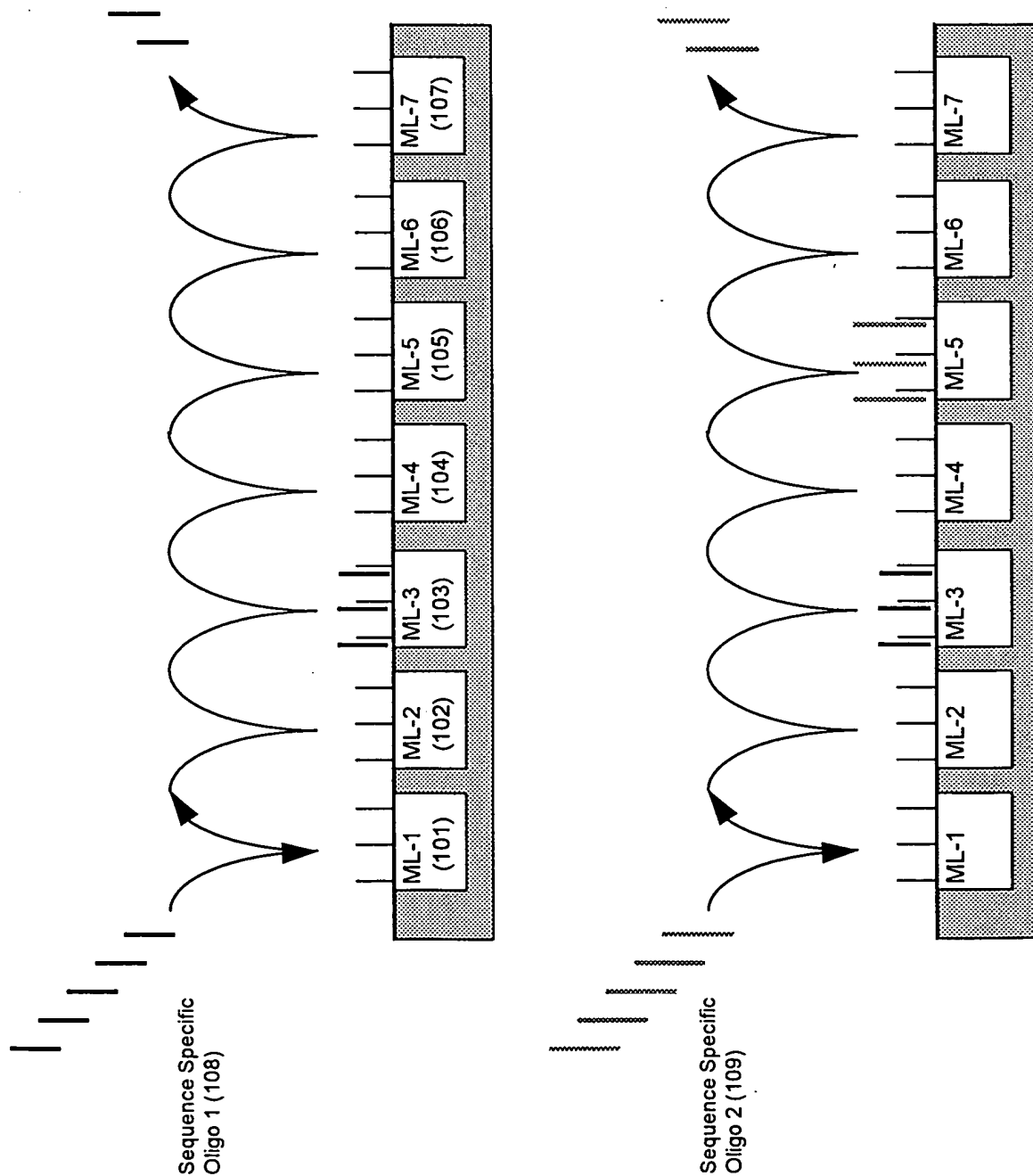


Figure 11: Electronic Stringency Control (ESC) of Hybridization Process

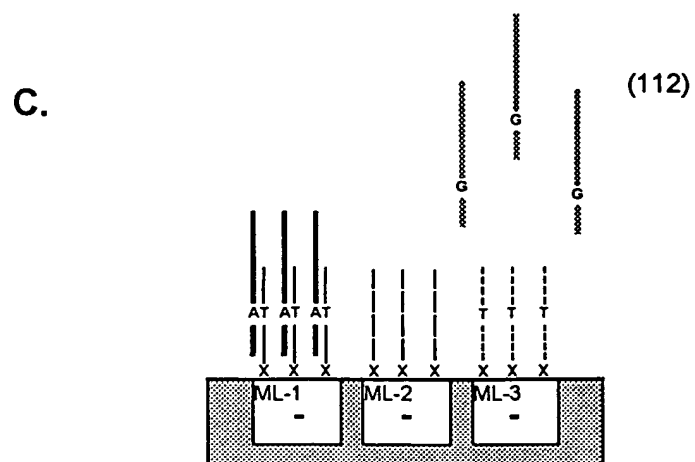
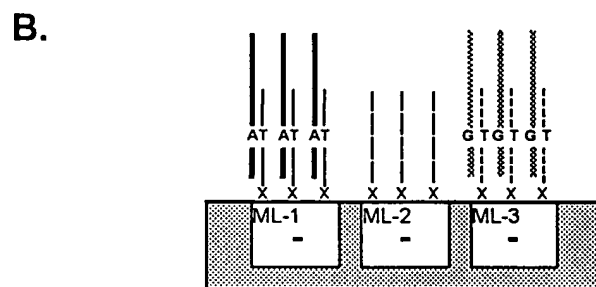
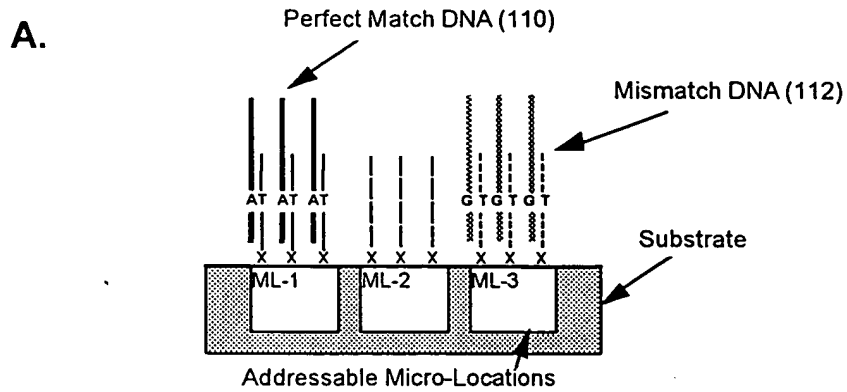
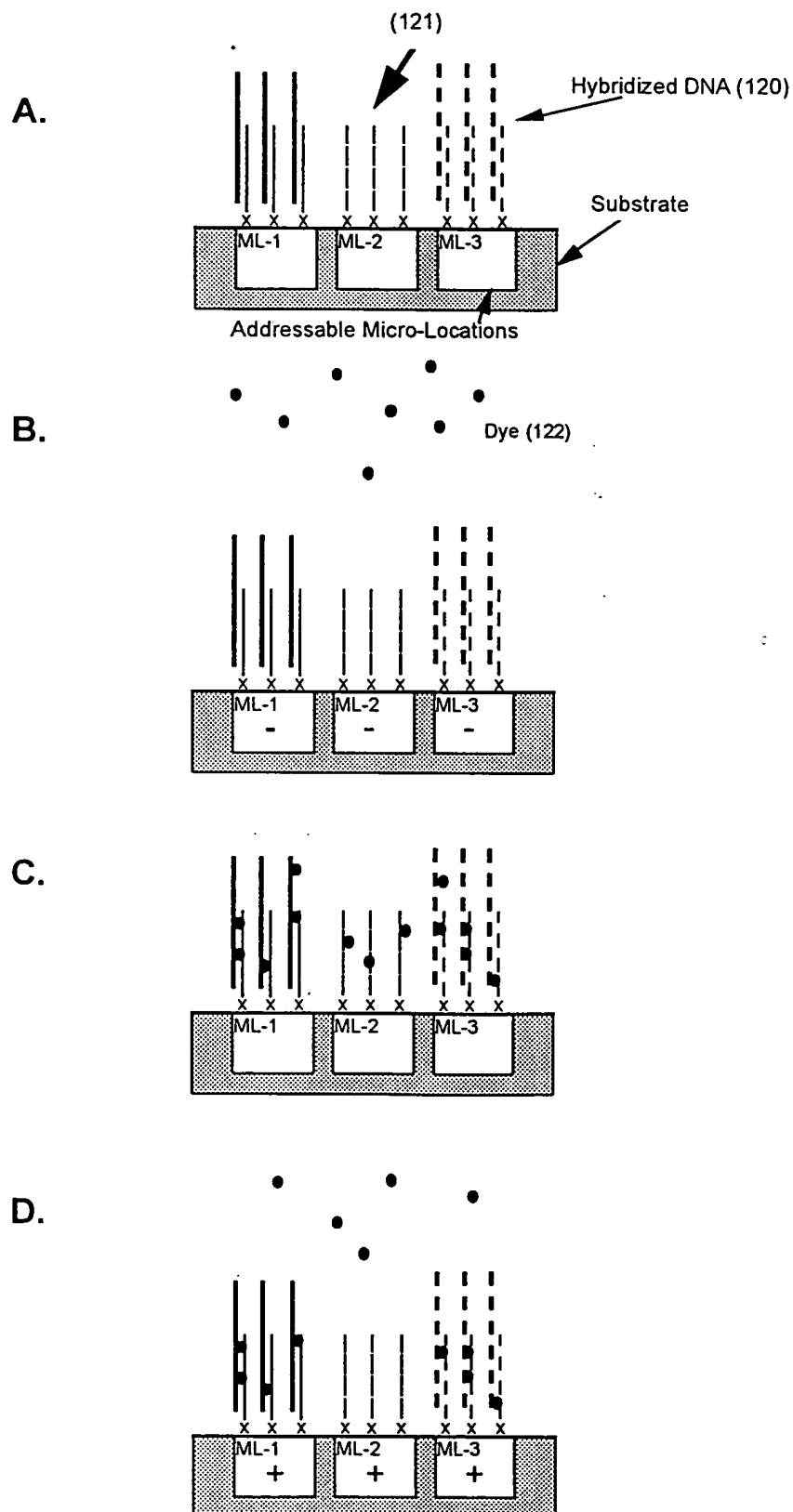


Figure 12: Electronically Controlled Fluorescent Dye Detection Process



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Figure 13: Electronically Controlled Template Replication

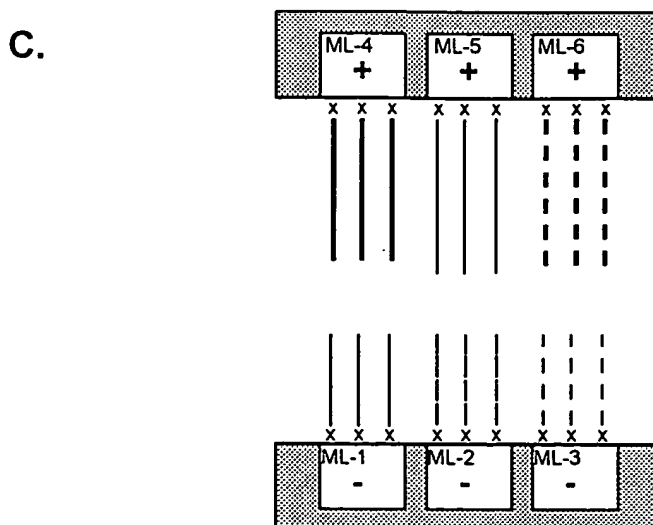
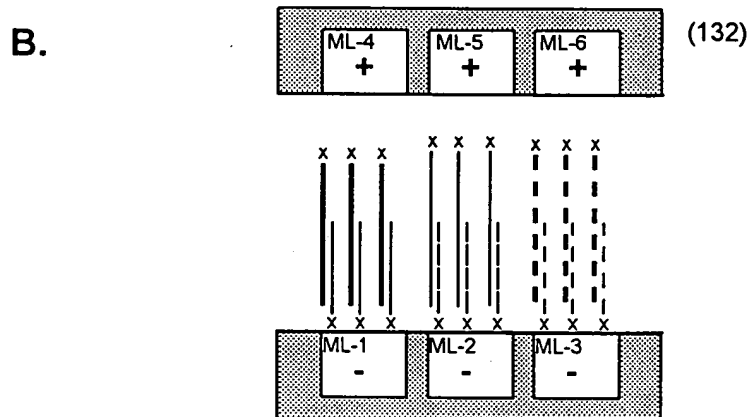
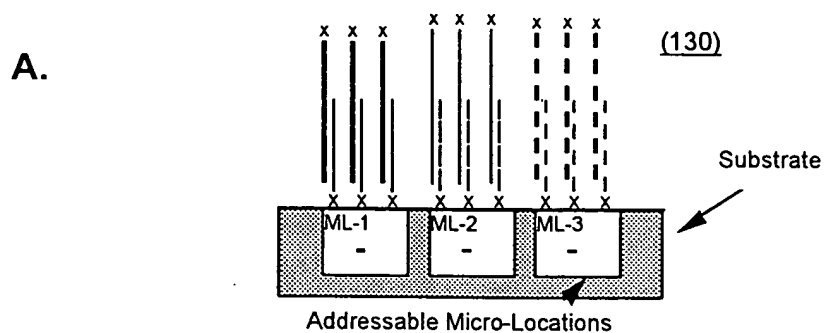


Figure 14: Electronically Directed Combinatorial Synthesis.

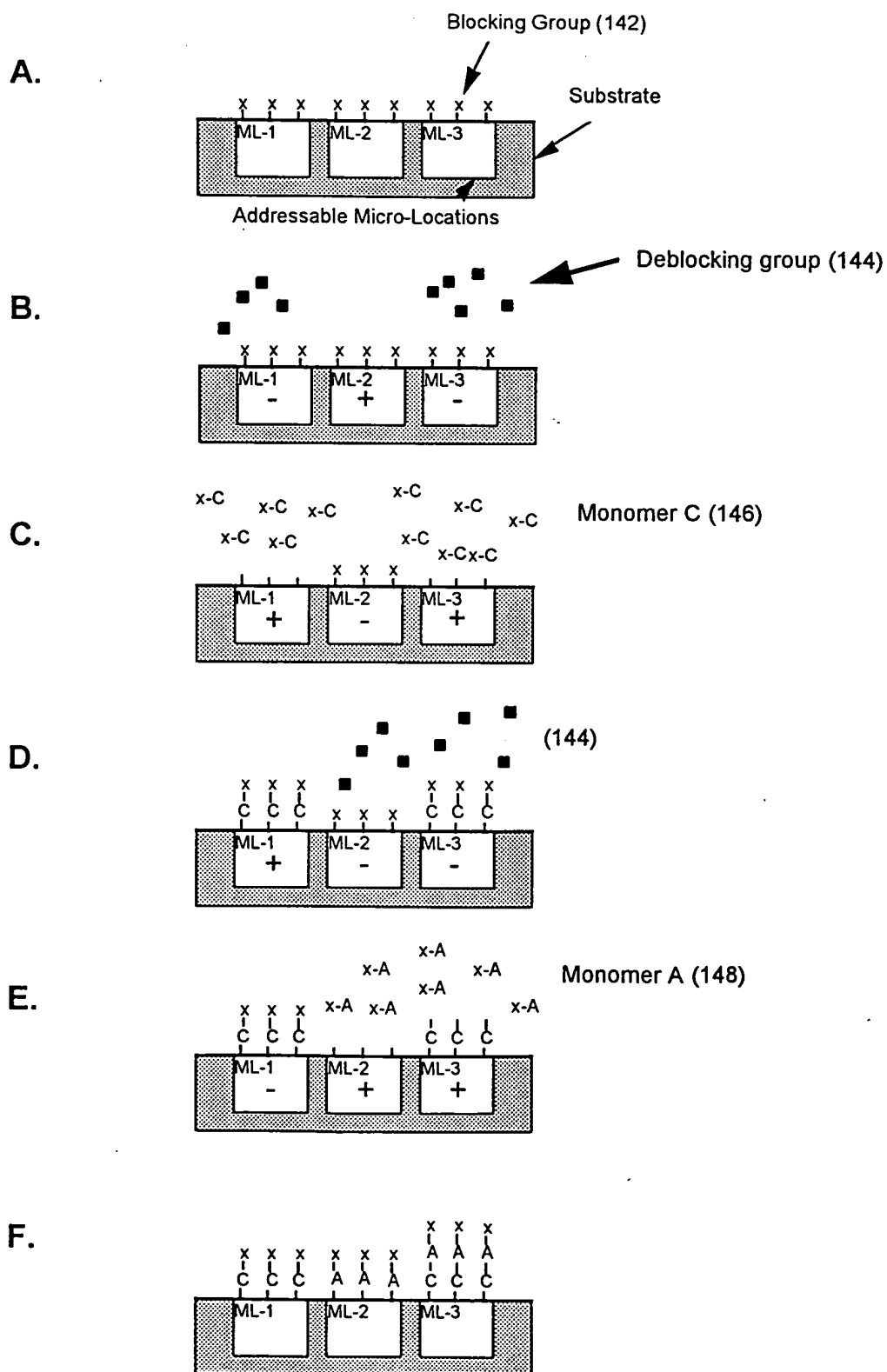


Figure 15.
Relative Sensitivity for Mismatch Discrimination

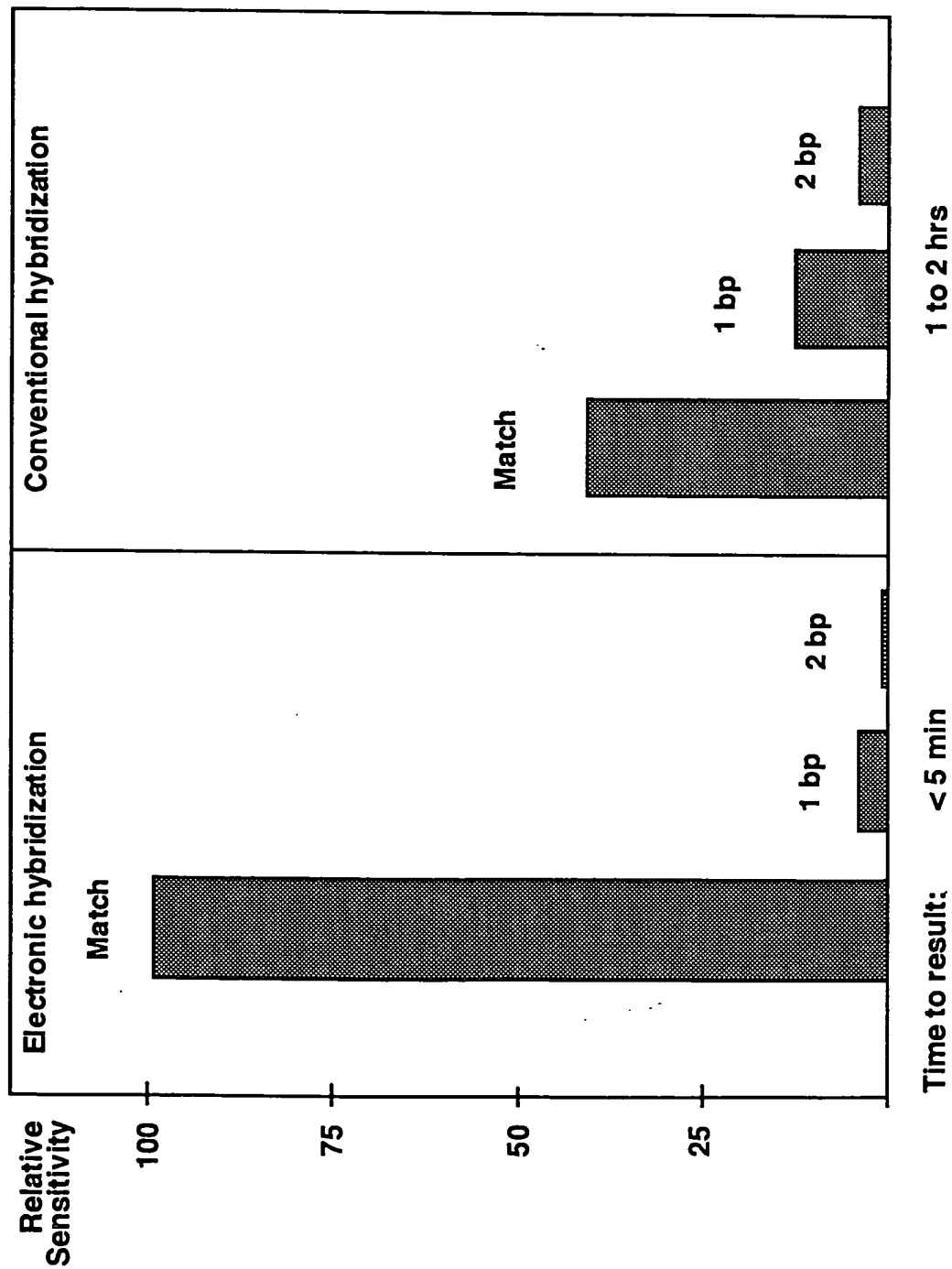
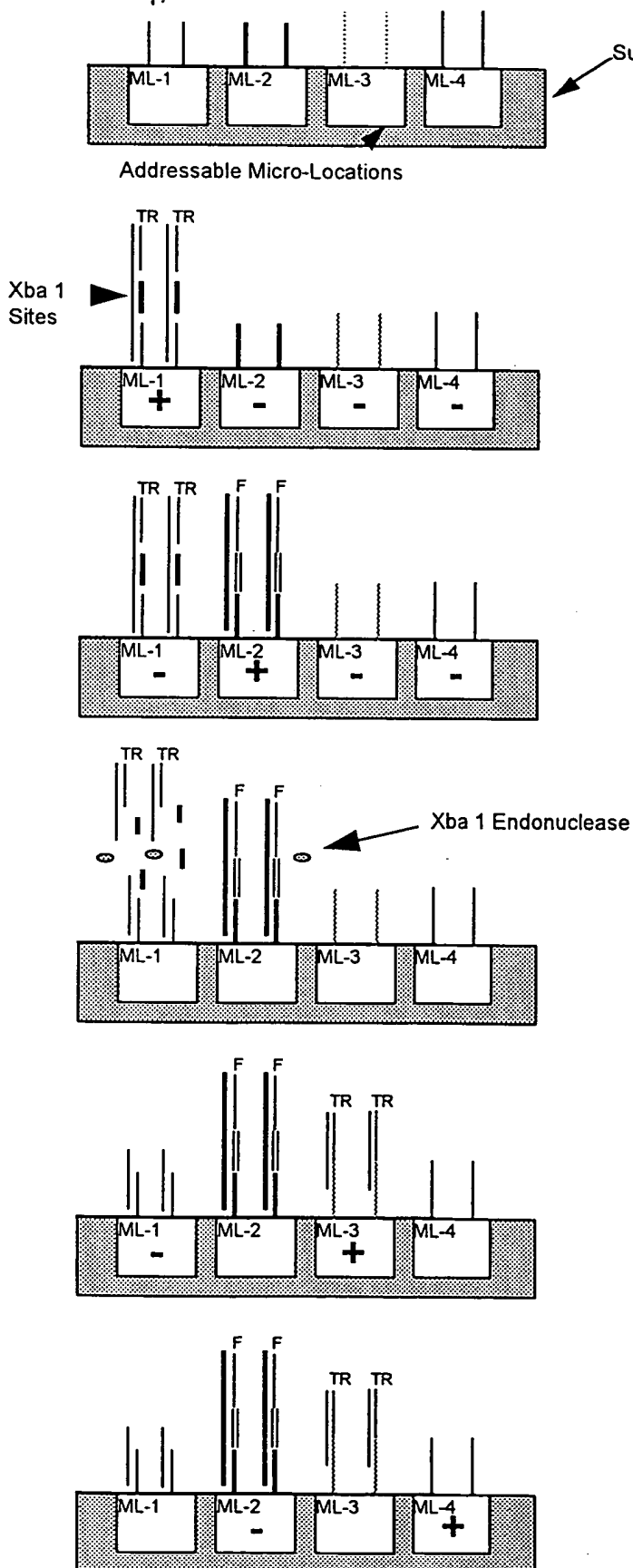


Figure 16

Electronic Restriction Cleavage



Address ML-1 with M13mp18 target, restriction probe and TR probe (Xba 1 site)

Address ML-2 with M13mp8 target, restriction probe and F probe (No Xba 1 site)

Xba 1 restriction digest at ML-1

Restriction fragment moved to ML-3

ML-2 not restricted by Xba 1

Figure 17

Electronic Amplification Reactions

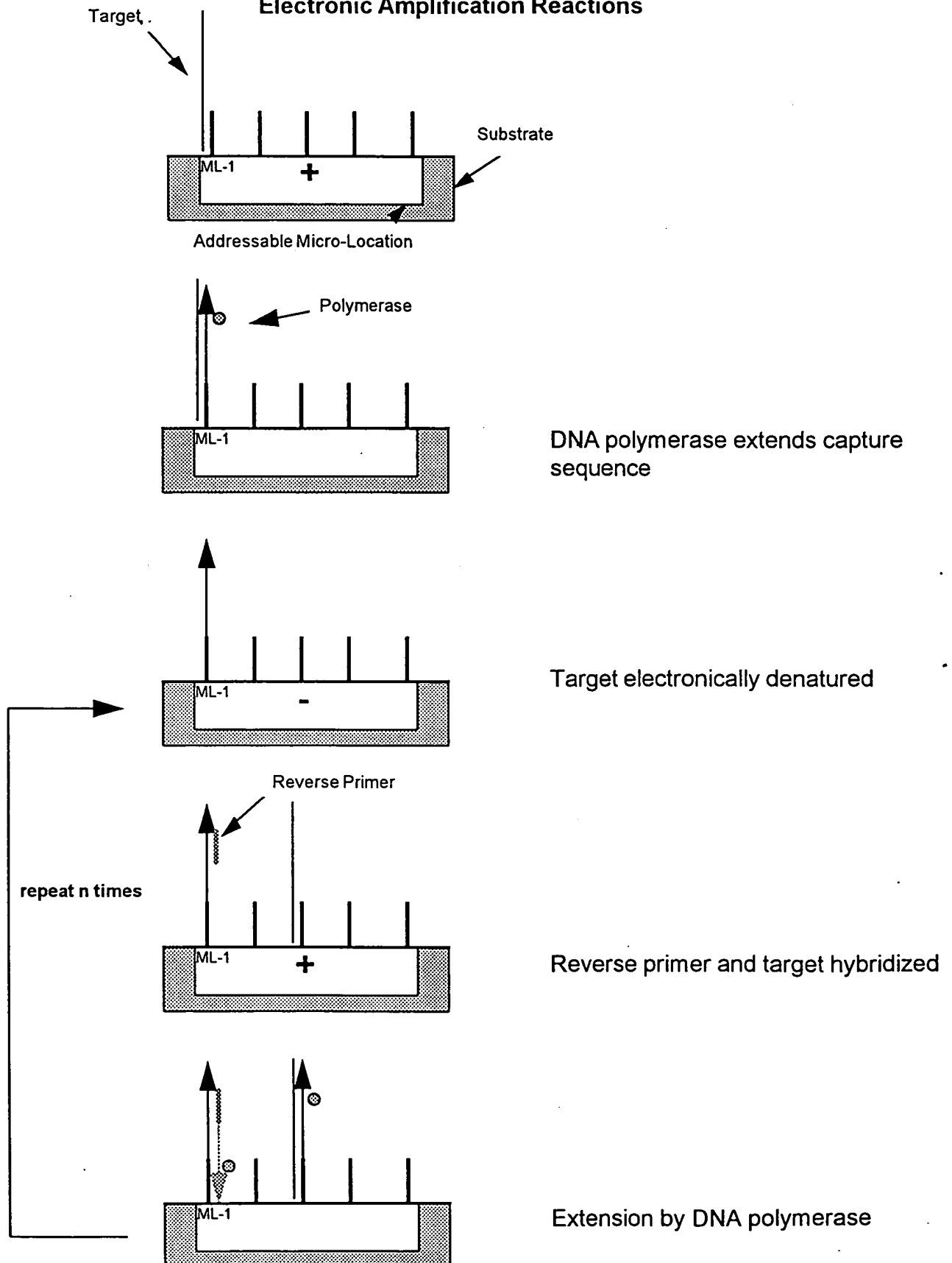
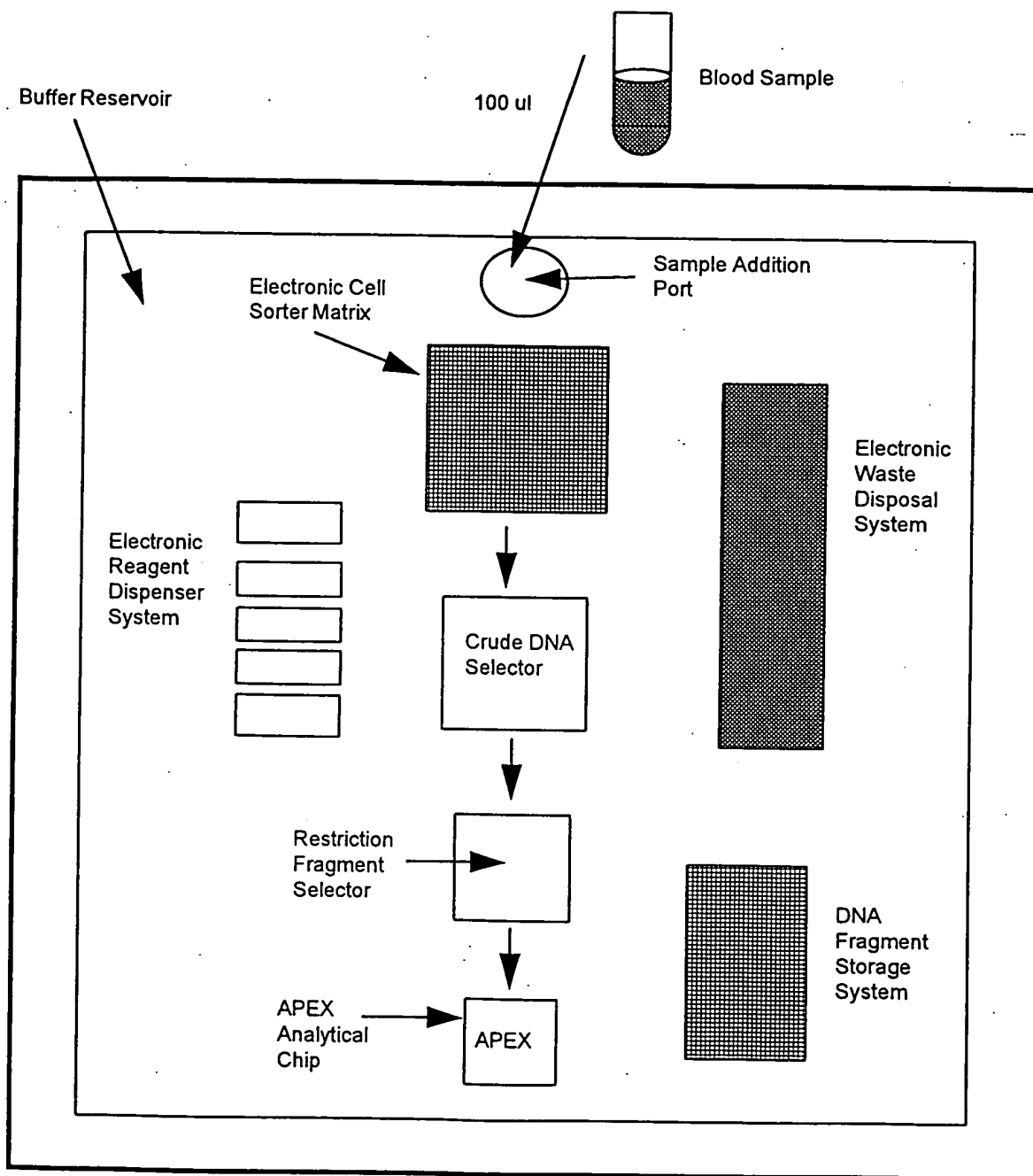


Figure 18

Complete APEX System with Sample Preparation



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